

20. (amended) The process of claim 1 wherein the series of extractors comprise at least a first extractor operated at a first temperature, followed by a second extractor operated at a second temperature, followed by a third extractor operated at a third temperature, wherein the first temperature is higher than the second temperature and the second temperature is higher than the third temperature, and wherein the first extractor is configured to extract distillates under vacuum from residues under vacuum, the second extractor is configured to extract atmospheric residues from distillates under vacuum, and wherein the third extractor is configured to extract light hydrocarbons from heavy hydrocarbons.

Remarks

Claims 1-20 are pending in the application. Claims 1-20 stand rejected by the Examiner. Claims 4 and 20 have been amended.

Claim objections

The Examiner objects to claim 4 because it ends in a comma rather than a period. The Applicant has amended this claim and therefore believes the Examiner's rejection has been overcome.

Section 112 rejections

The Examiner rejects claim 20 under 35 U.S.C. §112, first paragraph, as containing subject matter which was not described in the specification in such a way as to enable one skilled in the art to make indoor use the invention. The Examiner states that "it is unclear how an extractor 'converts' products to lighter products when the purpose of an extractor is to 'remove' undesirable feed components such as metallic impurities." The Applicant respectfully traverses this rejection. The Applicant notes that the embodiment of the invention depicted in figure 1 includes means for extractive distillation 18 (i.e., extractors) which are configured to extract different cuts of products (e.g., light hydrocarbons) from a feed (e.g., heavy hydrocarbons) (see

page 5, lines 16-18). The extraction of the lighter products from the heavier product is equivalent to conversion of the heavier product. Although the terms "extract" and "convert" are equivalent in this context, the Applicant has amended claim 20 to use the former. The Applicant believes that this amendment does not affect the scope of the claim and, accordingly, submits that the amendment is made for the purpose of improving the readability of the claim, and not for the purpose of patentability.

Section 103 rejections

The Examiner rejects claims 1, 2, 4, 8, 9, 11-13 and 16-19 under 35 U.S.C. §103(a) as being unpatentable over the oral translation of German patent 1,049,851 (Koppers) in view of U.S. Patent No. 4,692,237 (Hsu) and U.S. Patent No. 3,998,726 (Bunas). The Examiner further rejects claims 3 and 16 under 35 U.S.C. 103(a) as being unpatentable over the oral translation of Koppers in view of Hsu and Bunas as applied to claims 1, 2, 4, 8, 9, 11-13 and 16-19, and further in view of U.S. Patent No. 4,406,793 (Kruyer). The Examiner further rejects claims 5-7, 14 and 15 under 35 U.S.C. §103(a) as being unpatentable over the oral translation of Koppers in view of Hsu and Bunas as applied to claims 1, 2, 4, 8, 9, 11-13 and 16-19, and further in view of U.S. Patent No. 1,811,195 (Watson). The further Examiner rejects claim 10 under 35 U.S.C. §103(a) as being unpatentable over the oral translation of Koppers in view of Hsu and Bunas as applied to claims 1, 2, 4, 8, 9, 11-13 and 16-19, and further in view of U.S. Patent No. 1,935,148 (Dubbs). The Applicant respectfully traverses these rejections.

The Examiner first states that "[t]he reference's heat transfer gas is considered to correspond to Applicant's jet containing energy." The Applicant disagrees. While the reference discloses the use of a gas to transfer heat, it does not disclose that the gas is introduced as a jet, as recited in the claims. As indicated in the specification of the application, the jet imparts not only thermal energy, but also kinetic (mechanical) energy to the feed (see, e.g., page 8, lines 20-28; page 45, lines 6-12; page 50, lines 6-12). This limitation is not disclosed or suggested by the reference.

The Examiner further states that "the reference's vaporization of the gas/feed mixture is considered to correspond to Applicant's expanding of a load at a second pressure because the gas/feed mixture is converted to a vapor which is less dense." The Applicant respectfully disagrees. The change in density between a load before it is vaporized and after it is vaporized has nothing to do with the pressure on the load. It is well-known that both a vaporized portion of a load and an unvaporized portion can be present at the same pressure. Consequently, the vaporization disclosed by the reference does not teach the expansion of the load at a second pressure as recited in the claims.

The Examiner further states that "the pressure of the gas/liquid mixture before it is expanded (i.e. vaporized) is considered to meet Applicant's limitation in claim 12 wherein the pressure is selected to minimize soaking" and that "[s]ince the reference does not disclose the formation of coke, it appears that soaking is limited." The Applicant again disagrees. The reference's disclosure of the existence of a gas/liquid mixture prior to vaporization does not teach any particular pressure, much less one which is selected to minimize soaking. The Applicant further notes that, simply stated, the failure of the reference to mention the formation of coke teaches nothing about the formation of coke. The absence of any such disclosure certainly does not imply that soaking is limited, as recited in claim 12.

The Applicant notes that, in order to establish a prima facie case of obviousness, the Examiner must show: that the prior art references teach or suggest all of the claim limitations; that there is some suggestion or motivation in the references (or within the knowledge of one of ordinary skill in the art) to modify or combine the references; and that there is a reasonable expectation of success. M.P.E.P. 2142, 2143; In re Vaeck, 947 F.2d 488, 20 U.S.P.Q.2d 1438 (Fed. Cir. 1991). Because neither the Koppers reference nor the other references cited by the Examiner teach the limitations discussed above, the prior art does not meet the first limitation, and the claims therefore cannot be obvious from the this combination of references. Although this is sufficient to distinguish the claims from the prior art, the Applicant further notes that there is no teaching in the references that they should be combined (see the second requirement above.) On this basis as well, the rejection is unsupported. Additionally, the Examiner has not

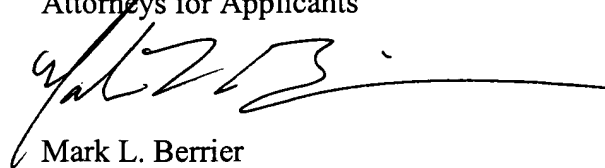
provided any explanation as to why the combination of references is proper. (When the motivation to combine the teachings of the references is not immediately apparent, it is the duty of the Examiner to explain why the combination of the teachings is proper. Ex parte Skinner, 2 U.S.P.Q.2d 1788, 1790 (Bd. Pat. App. & Inter. 1986).) In this respect as well, the Examiner has not met the burden of establishing that the claims are obvious under 35 U.S.C. §103.

Conclusion

For at least the foregoing reasons, the Applicant submits that the Examiner's rejections and objections to the pending claims have been overcome and that the claims are allowable. The Applicant therefore respectfully requests that the Examiner reconsider the rejections and objections and allow the claims. If any extensions of time are necessary to prevent the above referenced application from becoming abandoned, the Applicant hereby petitions for such extensions. Please charge the \$110 one month extension of time fee to Deposit Account No. 50-0456. If any fees are inadvertently omitted, or if any additional fees are required, or if any amounts have been overpaid, please appropriately charge or credit those fees to Deposit Account No. 50-0456 of Gray Cary Ware & Freidenrich, LLP.

Respectfully submitted,

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